GCSE Foundation A Maths Learning Journey

South Lincolnshire Academies Trust

A good maths GCSE at grade 4 or 5 will support your application for college and sixth form courses, apprenticeship and job opportunities.

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YEAR 12+

- Written Exam 3 Papers
- Exam Questions and Techniques
- Revision (gcsepod)
- Quadratic Graphs
- Vectors
- Solving Quadratic Equations $x^2 + 3x - 4 = 0$
- Growth & Decay (Exponential Growth Problem $f(t) = a(1+r)^t$; a = initial amount, r = rate of increase (growth rate), t = time)
- Trigonometry
- Inequalities ($x > 3$)

YEAR 11

- Direct and Inverse Proportion
- Sketching Graphs
- Congruence and Similarity
- Algebra and Graphs $2x - 3 = -7$
- Volume
- Algebra; Quadratics and Rearranging Formulae
- Transformations
- Introduction to Trigonometry
- Further Circumference and Area (radius r, $C = 2\pi r$, $A = \pi r^2$)
- Graphs Recap and Extension (How to use $y = mx + c$)
- Statistical Measures
- Algebra Recap and Extension (Expanding $2(g+4) = 2g + 8$)
- Basic Probability Review
- Further Area and Perimeter
- Indices (List of Indice Laws)
- Probability
- Simultaneous Equations
- Calculating with Percentages
- Ratio and Proportion Review
- Sequences (6, 10, 14, 18, 22; +4 +4 +4 +4)
- Scale Drawings and Bearings
- Properties of Polygons (Pentagon)

YEAR 10

- Basic Probability
- Constructions and Loci
- Introduction to Circumference and Area (radius r, $C = 2\pi r$, $A = \pi r^2$)
- Standard Form (2.9×10^1, 3.50×10^2)
- Real life Graphs
- Ratio and Proportion ($20 : 32$, $\div 4$, $5 : 8$)
- 2D Representations of 3D shapes
- Co-ordinates and Linear Graphs
- Pythagoras' ($a^2 + b^2 = c^2$)
- Equations $2x - 3 = -7$
- Measures (Km, m, cm, mm; ×1000, ×100, ×10; ÷1000, ÷100, ÷10)
- Basic Fractions ($\frac{5}{3} \div \frac{2}{9} = \frac{5}{3} \times \frac{9}{2} = \frac{45}{6} = \frac{15}{2}$)
- Collecting and Representing Data
- Basic Algebra $6x+2 = 2(3x+1)$
- Angles (Acute angle 62°)

YEAR 9

- Basic Number
- Basic Decimals
- Rounding (x = 30cm to the nearest ten, $25 \le x < 35$)
- Basic Percentages (73% of 680)
- Perimeter and Area ($A = \frac{bh}{2} = \frac{6 \times 8}{2}$)
- Scatter graphs (Positive correlation)
- Constructions
- Area and Volume
- Powers and Roots ($\sqrt{1} = 1$, $\sqrt{4} = 2$, $\sqrt{9} = 3$)
- Calculating Fractions Decimals and Percentages ($\frac{1}{2} = 0.5 = 50\%$)
- Number Recap
- Algebra Recap $6x+2 = 2(3x+1)$
- Transformations (Rotation)
- Angles
- Addition & Subtraction of Fractions (Adding Fractions $\frac{3}{10} + \frac{2}{6}$)
- Proportion (Ratio & Proportion)
- Rounding (Rounding and Estimation)
- Equations ($x + 3 = 8$; $x + 3 - 3 = 8 - 3$)

YEAR 8

- Averages (mean average; median middle)
- FDP
- Decimal Arithmetic ($38.004 - 12.769 = 25.235$; $13.86 \times 3.9 = 54.054$)
- Properties of Shape (Rectangle)
- Calculating Space
- Arithmetic with Fractions ($\frac{7 \times 1}{7 \times 2} + \frac{3 \times 2}{7 \times 2}$; $\frac{7+6}{14} = \frac{13}{14}$)
- Equations (Solving Equations)
- Measuring Space
- Finding percentages and fractions (30% of 160 $= \frac{3}{10} \times 160 = 160 \div 10 \times 3 = 48$)
- Angles
- Sequences (19, 15, 11, 7 …)
- 2D and 3D Shapes
- Negative Numbers
- Averages (2 4 5 6 7 8 9 — 6 is the Median)
- Multiplication & Division
- Negative Numbers $-3 \times -5 = 15$
- Sequences (1 3 6 10 …)
- Representing Data
- Algebra $2x+4-x-3 = x+1$

YEAR 7

- Units of Measure
- The Number System
- Presenting Data
- Fraction Decimal Percentages (percentage 30%, fraction $\frac{3}{10}$, decimal 0.3)
- Transformations (Shape A, Shape B, centre of rotation)
- Algebra (Collect like terms $4a + 5 + 2a - 3 = 6a + 2$)
- Rounding (Rounding Numbers: 2349 → 2400, 2300)
- Proportion
- Transformations
- Angles (90° Right angle)
- Y6 SATS (Year 6 SATs)